

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Shoal Creek

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#### Water Body Segment at a Glance:

**County:** Newton  
**Nearby Cities:** Granby, Saginaw  
**Length of impaired segment:** 43.5 miles  
**Pollutant:** Bacteria  
**Source:** Rural Nonpoint Source  
**Water Body ID:** 3222



State Map Showing Location of Watershed

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**Scheduled for TMDL development:** 2014

#### Description of the Problem

##### Beneficial uses of Shoal Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Cool Water Fishery
- Whole Body Contact Recreation – Category A
- Secondary Contact Recreation
- Public Drinking Water Supply
- Irrigation

##### Use that is impaired

- Whole Body Contact Recreation – Category A

##### Standards that apply

Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E.coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B waters. This count is the geometric mean during the recreational season (April 1- October 31) in waters designated for whole body contact recreation.

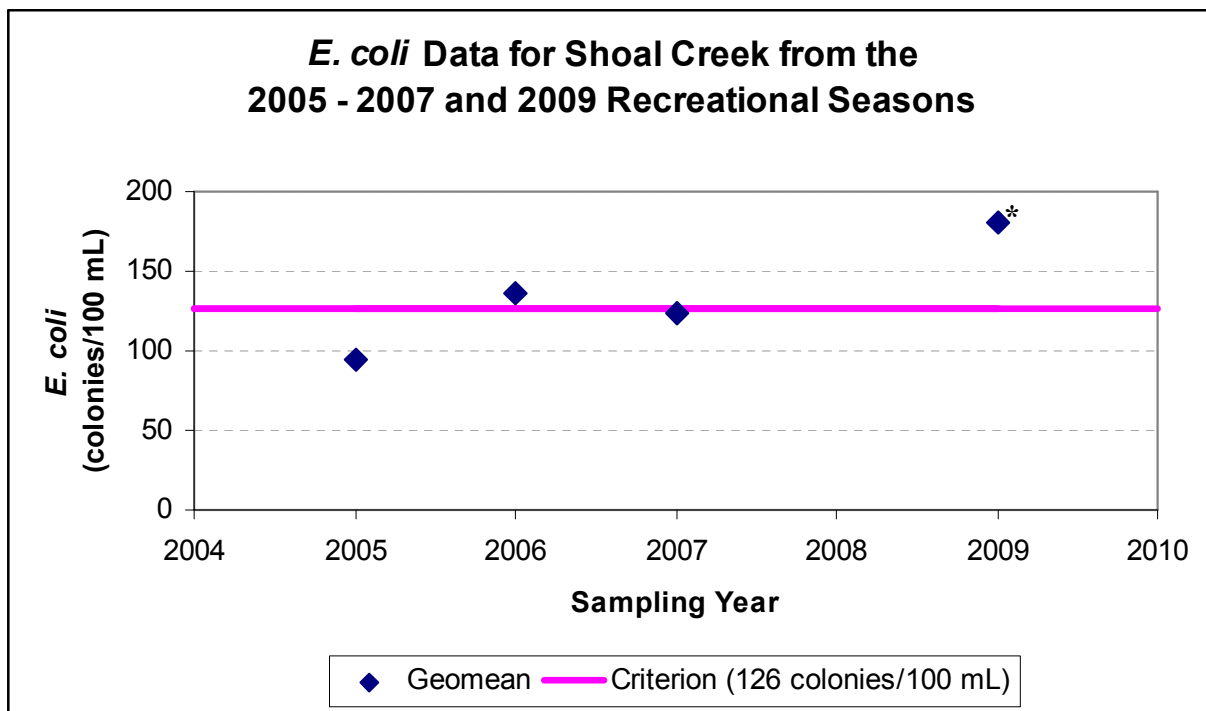
##### Background information and water quality data

Shoal Creek starts in Barry County in southwest Missouri and flows through Newton County into Kansas just south of Joplin. Evidence for the bacteria impairment is based on data gathered by the Newton County Health Department from 2005 to 2007.

Excessive amounts of fecal bacteria in surface water used for recreation are an indication of an increased risk of pathogen-induced illness to humans. Infections due to pathogen-contaminated waters include gastrointestinal, respiratory, eye, ear, nose, throat and skin diseases. *E. coli*, are bacteria found in the intestines of warm blooded animals and are used as indicators of the risk of waterborne disease from pathogenic (disease causing) bacteria or viruses. Most *E. coli* strains are harmless, but some can cause serious illness in humans and are occasionally responsible for product recalls. The harmless strains are part of the normal flora of the intestines, and can benefit their hosts by preventing the establishment of pathogenic bacteria within the intestine<sup>1,2</sup>. Missouri's bacteria criteria are based on specific levels of risk of acute gastrointestinal illness. The levels of risk correlating to these criteria are no more than eight illnesses per 1,000 swimmers in fresh water.

Shoal Creek is designated as Category A for the whole body contact recreation use, which means it has swimming areas which are open to and fully accessible by the public. The geometric mean for the recreational season data for 2006 exceeded the water quality criteria of 126 col/100 mL) for Category A waters. One exceedance in the last three years of available data constitutes an impairment.

People can protect themselves from waterborne illness by avoiding contact with contaminated water. However, when swimming anywhere, it is wise to take common sense precautions. These include washing hands before eating, showering after swimming and avoiding exposure to questionable water if you have open cuts or wounds.

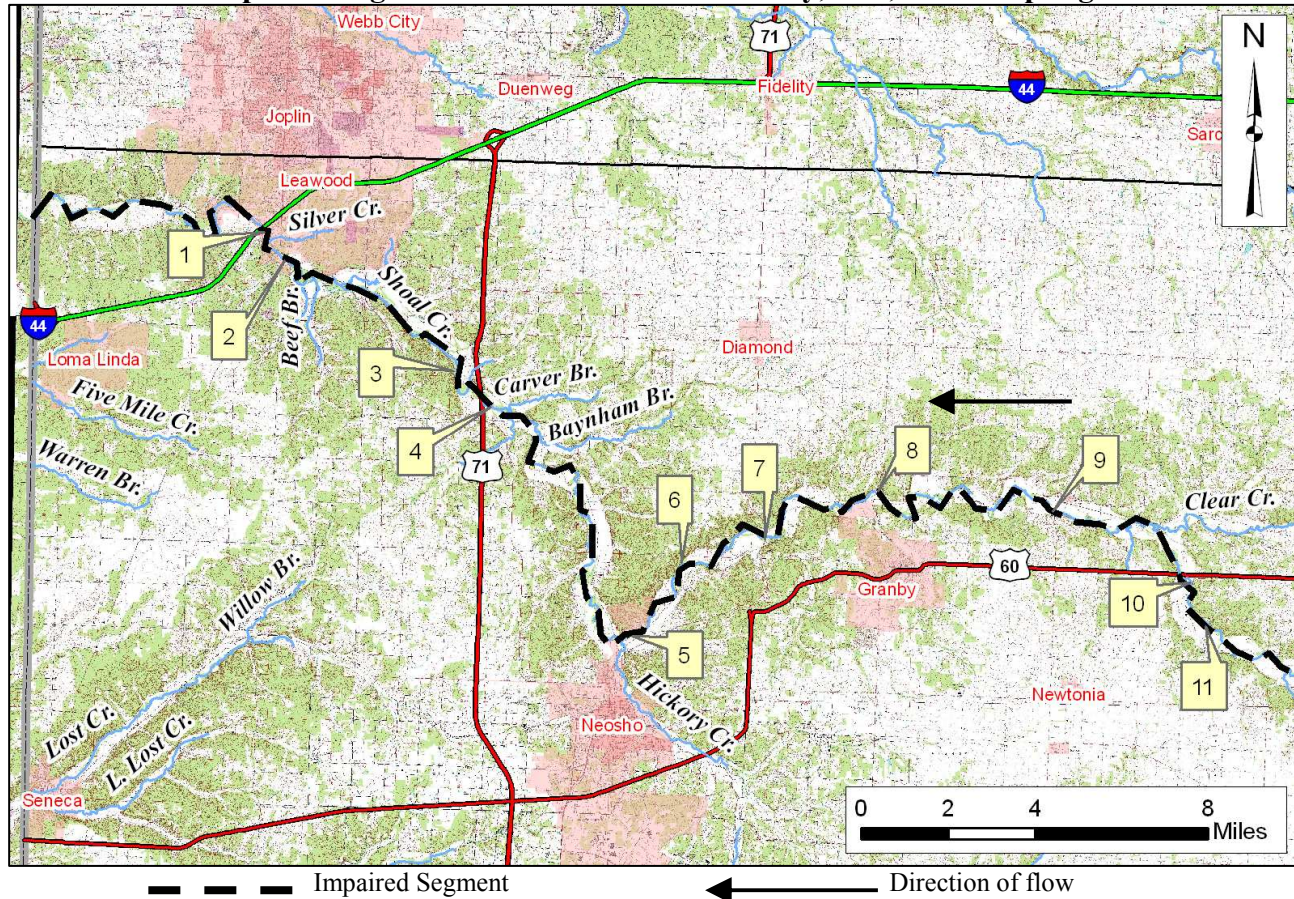


\* Geomean for 2009 was calculated using fewer than five (5) samples

<sup>1</sup> Hudault S, Guignot J, Servin AL (July 2001). "[Escherichia coli strains colonising the gastrointestinal tract protect germfree mice against Salmonella typhimurium infection](#)". *Gut* **49** (1): 47–55

<sup>2</sup> Reid G, Howard J, Gan BS (September 2001). "Can bacterial interference prevent infection?". *Trends Microbiol.* **9** (9): 424–8.

## Map Showing Shoal Creek in Newton County, Mo., and Sampling Sites



### Sample Sites

- |  |   |
|--|---|
| 1 – Shoal Cr. Nr. I-44 at Wildcat Park, Joplin | 7 – Shoal Cr. at Cherry Corners CA        |
| 2 – Shoal Cr. at Hwy 86                        | 8 -- Shoal Cr. Nr Grandby at Old Hwy E    |
| 3 – Shoal Cr. at Tipton Ford CA                | 9 -- Shoal Cr. at Hwy W                   |
| 4 – Shoal Cr. at Old Hwy 71, S. of Tipton Ford | 10 -- Shoal Cr. at Smack Out CA Boat Ramp |
| 5 – Shoal Cr. at Lime Kiln CA boat ramp        | 11 -- Shoal Cr. at Vixen Rd               |
| 6 – Shoal Cr. at Allen Br. CA Boat Ramp        |   |

### For more information call or write:

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